University of Queensland

PRENTICE COMPUTER CENTRE

Newsletter

authorization: Director of the Centre

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2   A SPECIAL NEW SYSTEM NEWSLETTER

This is a special newsletter covering matters associated with the
implementation and use of the new PDP1090 (KL) system which
completed acceptance tests on 10.3.78.

One processor and 48000 words of memory on the existing system will
be traded-in as from 10.6.78. It is therefore necessary to transfer
sufficient work to the new system as soon as possible to maintain
the viability of the old system.   On the other hand, the 1090 system
is an initial configuration and we are limited in the amount of
communications lines and disk storage facilities available.

During April and May, we propose to transfer most internal Computer
Centre terminals, Administration, Library, Commerce and Griffith
remote batch stations and terminals within those precincts as well
as terminals from some other academic departments with large
computational requirements.   Separate advice will be forwarded to
the departments on the proposed arrangements.

Terminals transferred to the 1090 system will not have the ability
to access the PDP1050 (KA) system.   For those users remaining on
the 1050 system, we believe that, with the removal of a number of
large consistent users, job slot availability and response will be
very acceptable.

Initially, each system will have a separate accounting system,
although charges will be gathered in a single statement to users.
We have attempted to set charges on the new system so that they
give approximately the same job cost.   As our own tests are
necessarily limited, there will no doubt be some fine tuning as a
result of user experience.

We will be able to provide some limited access to the new system
from terminals connected to the 1050 system.   We do not intend, at
this stage, to provide file transfer capability between the two
systems.   Thus, if a project is commenced on the 1090 system, it
cannot be transferred to the 1050 system.   As an interim measure,
it would be appreciated if application could be made to the Director
by 1050 users wishing to have projects allocated on the 1090 system.

Users should notice very little change from a facilities viewpoint
in using the new system.   We have endeavoured, during the second
hald of 1977, to bring the 1050 system to the same level of operating
system and language implementation as will be implemented on the
PDP1090 system.   Nevertheless, there are some variations and these
are covered in later sections of the newsletter.

Our aim is to improve service to our users on both systems. We hope
that, once the initial change over has been completed, it will be
possible to lift the disk storage quota to 1000 blocks on both
systems.

Mr. John Barker (extension 3016) is responsible for general oversight
of the implementation of the 1090 system.   Technical and programming
problems should be reported to telephone extension 3025.

Director   (2189)

3   PDP1090 SYSTEM - EQUIPMENT

Details of the equipment included in the PDP1090 system currently
installed are:

                    1 x KL10B Processor
                    1 x 512K Memory
                    3 x RPO6 Disk Drives
                    2 x TU45 9-Track Tape Drives
                    1 x LP100 Line Printer
                    1 x DN87S Communications Sub-System.

The KL10B Processor is compatible with the current KA10 processors
with additional hardware instructions for double precision integer
and floating point arithmetic plus 19 business instructions to enhance

the speed of commercial applications.   A 2K cache memory with
160 nsec. access time allows programs to run considerably faster
than the main memory speed.

Up to eight data channels are integrated within the processor and
four internal data paths allow connection of PDP11 mini-computers.
One of these paths connects a diagnostic computer, completely
replacing the traditional "lights and switches" console for system
loading, examination and online diagnostics.   The remaining paths
connect communications subsystems.   The hardware supports up to
four processor configurations.

Memory is four-way interleaved since the processor is capable of
fetching four simultaneous words from memory.   The processor can
address up to 4096K of physical memory.   Paging hardware supports
virtual memory operations.

The RPO6 disk drives each have a capacity of 200M bytes and transfer
at a rate of 800,000 bytes/second (current RPO3's are 60M at 320Kb).
They are connected on two separate channels.   The TU45 magnetic
tape units work at 75 inches/second at either 800 bpi (NRZ1) or
1600 bpi (Phase Encoded) for a maximum transfer rate of 120,000 bytes/
second.   The LP100 printer is a high quality train printer which
will print at a speed of 1200 lpm with the 64 character set.

The DN87S communications sub-system consists of a PDP11/40 mini-
computer capable of supporting both synchronous and asynchronous
transmission.   The initial configuration will include 64 asynchronous
terminal lines and four synchronous lines for the remote batch
stations.

Users of the new system should notice little apparent difference
as the TOPS10 monitor is virtually identical to the version
currently running.   The major initial advantage from the new
system is additional capacity.

                                                    Director   (2189)

4   PDP1090 BATCH SYSTEM - GALAXY

The PDP1090 makes use of a new batch processing system, the GALAXY
batch system, which is an upgrade of the MPB batch system currently
running on the 1050.   However, whilst GALAXY is meant to be more
efficient than MPB, it has also been designed so that the majority
of current MPB users can run under GALAXY with little or no change
to their programs or procedures.

Amongst the design aims for GALAXY are:

- better queue processing, especially under heavy load, by making use of facilities not on the 1050, including virtual memory management and paging;

- handling of output files so that users appear to be outputing directly to line printers, plotters, etc.

The first design aim will result in less overhead and hence less cost to the user community. The second aim should enable users to handle output a little more naturally and automatically.

The differences which we have observed between GALAXY and MPB and which will affect some users are discussed in this article. As some components of the GALAXY system are common to batch and interactive users, the latter will see some minor changes also.

<u>Device LPT</u>:

When output is directed to device LPT:, for example when specifying device unit number 6 in FORTRAN, the output disappears from the user's area immediately as though it was being printed directly. Output directed to other devices, for example DSK:, causes a file to be left on the user's area which must be subsequently PRINTed if required.

This should not cause any problem when LPT files are output to standard stationery. If any special stationery or other special requests are required, for example multiple copies, then output should be directed to DSK:.

For example, the sequence -

.RUN MYPROG   (which creates a line printer file
                                by writing to Fortran logical unit 6)

.PRINT *.LPT/COP:2

is inappropriate as the LPT file is automatically queued for printing when the file is closed within the program and no longer exists on the user's area.

In summary, line printer files should not be used for special stationery; such output should be directed to disk and subsequently PRINTed with appropriate switches.

LIST Files

Files with extension .LST are no longer automatically queued
for output at LOGOUT in batch.

KJOB under MPB invokes the default switch /Z:4 (included in
the KJOB line in your log file listing) which, amongst other
things, queues *.LST files not previously queued.

KJOB under GALAXY invokes the switch /BATCH only which does
not queue any files but will delete files if you are over
quota according to the following rules -

> delete no files except when you are over the
> logged-out quota, then delete enough files to be
> below quota. The files are deleted in the
> following order:
>
> 1) unprotected files according to the category
>   of the file;
>
> 2) spooled files not previously queued; and
>
> 3) protected files according to the category of
>   the file.
>
> The categories of files are as follows:
>
> 1) temporary files,
> 2) relocatable files,
> 3) backup files,
> 4) save files, and
> 5) all other files.

Therefore, arrange to print all .LST files before KJOB in
your Batch control files.

The current sequence of actions taken by KJOB under MPB was
included in the Newsletter No. 219 for 12 October 1977.

/DEFER

/DEFER is a GALAXY switch only.   It causes all spooled
output to disappear from the user's area as it is created
but actual spooling is deferred until KJOB time. An advantage
is that various printer listings from a session are physically
printed together.

/OUTPUT

The function of the /OUTPUT switch is different under GALAXY.
Under MPB, the possible values and consequences are:

```
/OUT:0              no spooling;
     1              print the log file;
     2              print the log file and other queued output;
     3                 ditto      , plus .LST files;
     4                 ditto      , plus deferred output.
```

Under GALAXY, the possible values and consequences are:

```
/OUT: LOG           (default) - print the log file;
      NOLOG         do not print the log file;
      ERROR         print the log file only if errors are
                      encountered.
```

John Barker   (3016)

5   PDP1090 - TERMINAL USAGE

Terminals connected to the KL system go through a DN87S communications
front-end (a PDP11/40).   This acts a little differently to the PDP8
front-end on the KA.

1)   When you switch on your terminal, you may have to type
     a carriage return to get the DN87S to talk to you.

2)   If the KL crashes, you will get the message

          "tty not connected"

and you will have to begin again when the KL is reloaded.

3)   If the DN87S crashes, your terminal will go dead.   When
     it is reloaded, your job will be detached and you will
     have to attach to it by using the command -

          ATTACH job-number [p,pn]

If you do not know your job number, you can find it by
using the command -

          SYS [p,pn]

Please do not leave detached jobs on the system; they
will be logged-out K/B if there for too long.   When you
have attached to your job, to continue a previously running
program, type -

          HALT <cr>
          CONTINUE <cr>.

John Barker   (3016)

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